

**Description of *Scabrotrophon chunfui* n.sp. (Gastropoda : Muricidae)
from Northeast Taiwan and comments on
Nipponotrophon Kuroda & Habe, 1971 and *Scabrotrophon* McLean, 1996**

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ABSTRACT. *Scabrotrophon chunfui* n.sp. is described from Northeast Taiwan. It is compared with *S. emphaticus* (Habe & Ito, 1965), *S. densicostatus* (Golikov, 1985) and *S. bondarevi* (Houart, 1995). The new species differs mainly in the number and the morphology of the axial ribs and the spiral cords. A classification for the species of *Nipponotrophon* Kuroda & Habe, 1971 and *Scabrotrophon* McLean, 1996 is proposed.

RESUME. *Scabrotrophon chunfui* n.sp. est décrite du Nord-Est de Taiwan. Elle est comparée à *S. emphaticus* (Habe & Ito, 1965), *S. densicostatus* (Golikov, 1985) et *S. bondarevi* (Houart, 1995). *S. chunfui* n.sp. diffère surtout par le nombre et la forme des côtes axiales et des cordons spiraux. Une classification pour les espèces de *Nipponotrophon* Kuroda & Habe, 1971 et *Scabrotrophon* McLean, 1996 est proposée.

INTRODUCTION

The genus *Nipponotrophon* Kuroda & Habe, 1971 was introduced for *Boreotrophon echinus* Dall, 1918 (type species by monotypy) (Fig. 15). Since its description, however, the genus has been used by several authors for more or less similar northern muricid species having a trophonine aspect and a white, lamellose and spirally sculptured shell.

McLean (1996) divided all of these species into two groups, the "true" *Nipponotrophon* species and another group of species that he grouped together in a new genus, *Scabrotrophon* (type species by original designation : *Trophon maltzani* Kobelt & Kuster, 1878). After a careful examination of several northern and northeastern species we propose here a classification of the Recent species.

An unknown *Scabrotrophon* species was recently trawled off northeastern Taiwan and offered to us for identification. It is here described as a new species.

Abbreviations.

AMS : The Australian Museum, Sydney, Australia.

IRSNB : Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium.

MNHN : Muséum national d'Histoire naturelle, Paris, France.

NMNZ : Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.

NSMT : National Science Museum, Tokyo, Japan.

P1-P6 : primary cords.

s1, s2 : secondary cords (s1 between P1 and P2, etc).

SYSTEMATICS

FAMILY MURICIDAE Rafinesque, 1815

Genus *Scabrotrophon* McLean, 1996

Type species (by original designation) : *Trophon maltzani* Kobelt and Küster, 1878. Northeastern Pacific.

Original diagnosis : Shell small to medium in size, canal moderately long, open; protoconch paucispiral, of 1.5 rounded, well-separated whorls. Sculpture axial and spiral; early sculpture dominated by 2 strong spiral cords; spiral cords scabrous, overriding axial ribs of mature sculpture.

Remarks.

McLean (1996) included five species in *Scabrotrophon*. He differentiates it from *Nipponotrophon* mainly by the different spiral sculpture, *Scabrotrophon* species having two spiral cords in the early teleoconch whorls instead of one as

in *Nipponotrophon*, and a more extensive sculpture at maturity. The validity of most of his observations is confirmed by the examination of several species of "true" *Nipponotrophon* from Taiwan and Japan, including the type species, and comparison with most of the species here included in *Scabrotrophon*.

Although juveniles or growth series are as yet unavailable, *Nipponotrophon* differs from *Scabrotrophon* in having one to three primary, rounded, almost smooth spiral cords on the first and second whorls, one or two cords from third to sixth whorls and a last whorl with three to five almost smooth primary cords, ending as small to long broad open spines on the axial lamellae. The penultimate and the last adult whorl rarely bear shallow secondary cords. The shoulder is smooth.

Scabrotrophon has two or three primary squamous cords from the first to the third whorl, fourth and fifth whorls with two or three primary cords, occasionally with one intermediate secondary cords, sixth with 2 or 3 primary cords, occasionally with one or two secondary cords and tertiary, shallow cords. The last whorl has primary, secondary and tertiary cords. The primary and secondary cords occasionally are of same strength on the penultimate and last adult whorls. Primary and secondary cords are present on the shoulder.

The axial sculpture in *Nipponotrophon* consists of 12 or 13 axial cords on the first teleoconch whorl, 11-13 on second, 9-12 on third, 9-13 on fourth, 9-14 on fifth, 9 on the sixth whorl. The last adult whorl bears 5-8 narrow, lamellate, occasionally rounded ribs.

In opposition, the axial sculpture in *Scabrotrophon* consists of 9-13 axial ribs on the first whorl, 13-16 on second, 9-14 on third, 9-14 from fourth to sixth. Last adult whorl with 9-13 ribs. Ribs rounded or weakly lamellate.

An ultimate difference was noted in the operculum. In *Nipponotrophon* the operculum is inverted tear-shaped with a nucleus in apical left (Fig. 5) while it is ovate with the nucleus in apical center in *Scabrotrophon* (Fig. 4).

Currently, we include the following species in *Nipponotrophon* and *Scabrotrophon* :

***Nipponotrophon* Kuroda & Habe, 1971**

- N. echinus* (Dall, 1918) (Fig. 15)
- N. elegantissimus* (Shikama, 1971)
- N. gorgon* (Dall, 1913)
- N. magnificus* (Golikov & Sirenko, 1992)
- ?*N. makassarensis* Houart, 1984
- N. pagodus* (Hayashi & Habe, 1965) (could be a synonym of *N. gorgon*)
- N. shingoi* (Tiba, 1981) (could be a synonym of *N. elegantissimus*)

Note : ?*N. makassarensis* was originally included in *Nipponotrophon* but it differs in having an ovate

operculum with a nucleus in apical right. Its classification remains doubtful.

***Scabrotrophon* McLean, 1996**

- S. bondarevi* (Houart, 1995)
- * *S. cerritensis* (Arnold, 1903)
- * *S. clarki* McLean, 1996
- S. densicostatus* (Golikov, 1985)
- S. emphaticus* (Habe & Ito, 1965)
- S. fabricii* (Beck in Möller, 1842)
- * *S. grovesi* MacLean, 1996
- * *S. lasius* (Dall, 1919)
- * *S. maltzani* (Kobelt & Küster, 1878)
- S. regina* (Houart, 1985)
- ?*S. rossica* (Egorov, 1993)
- ?*S. scarlatoi* (Golikov & Sirenko, 1992)
- S. scitulus* (Dall, 1891)

* Species originally included in *Scabrotrophon* by McLean (1996).

? Species here tentatively included in *Scabrotrophon*.

***Scabrotrophon* chunfui n.sp.**

Figs 1-4, 6-10

Type material.

Holotype MNHN.

Paratypes : 1 NSMT-Mo 72864, 1 IRSNB IG 29304, 1 NMNZ M.273107, 1 AMS C.204772, 1 coll. R. Houart.

Type locality.

Northeast Taiwan, in 200-250 m.

Distribution.

Off Taiwan, 200-250 m.

Description.

Shell medium sized for the genus, up to 40 mm in length at maturity, slender, lanceolate, spinose, lightly built. Spire high with 1 $\frac{3}{4}$ - 2 protoconch whorls and up to 6 convex teleoconch whorls. Suture weakly adpressed. Protoconch moderately large, irregularly shaped, weakly bulbous and acute. Whorls smooth. Terminal varix weakly curved, eroded in all examined specimens.

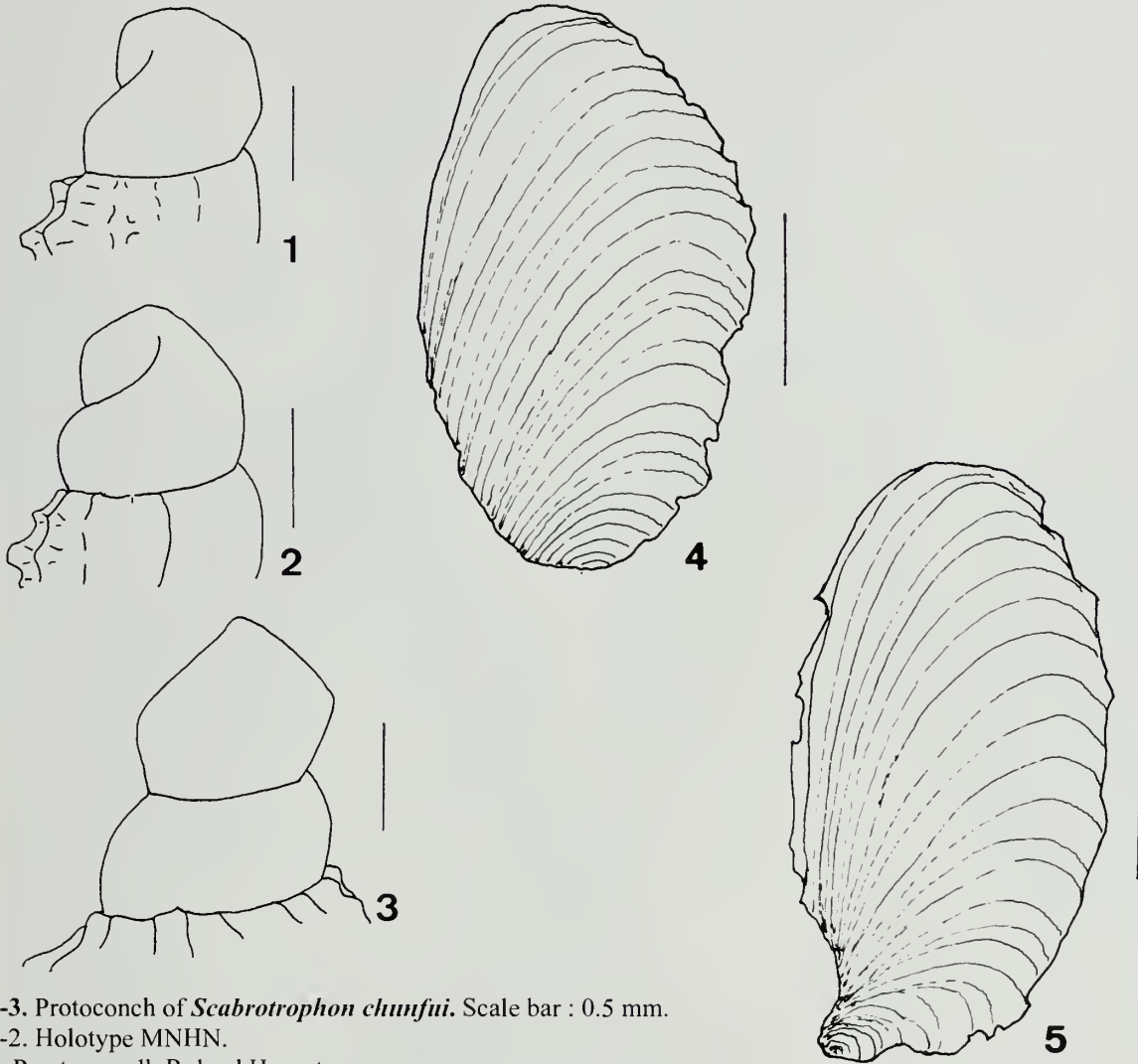
Axial sculpture of teleoconch whorls consisting of low, narrow, lamellose ribs. First whorl with 11 or 12 ribs, second with 13-16, third 13-15, fourth 15-17, fifth 12-16, sixth 12, last whorl with 8-10 ribs of which some occasionally stronger. Spiral sculpture usually of high, strong, narrow, primary, secondary and tertiary cords. First whorl with P1-P3, second with secondary cord on shoulder, P1-P3 on convex part of whorl, third with 2 secondary cords on

shoulder, P1, s1, P2 on convex part of whorl, fourth to sixth with 2 secondary cords on shoulder, P1, s1, P2 of approximately same strength. Last whorl with 11 or 12 primary and secondary cords, occasionally of same strength. Secondary cords on shoulder narrower. Spiral cords forming small, short, broadly open spines at intersection with axial lamellae. Aperture large, ovate. Columellar lip broad, flaring,

smooth, partially erect, adherent at adapical extremity. Anal notch obsolete. Outer lip smooth. Siphonal canal medium sized, length 29.5-33.7 % of total shell length, straight, open, with 5 or 6 low spiral cords.

White or light tan.

Operculum light brown, ovate, with nucleus in apical center. Radula unknown.



1-3. Protoconch of *Scabrotrophon chunfui*. Scale bar : 0.5 mm.

1-2. Holotype MNHN.

3. Paratype coll. Roland Houart.

4. Operculum of *Scabrotrophon chunfui* (holotype). Scale bar : 2 mm.

5. Operculum of *Nipponotrophon echinus* (Dall, 1918). Scale bar : 2 mm.

Remarks.

Scabrotrophon chunfui n.sp. differs from *S. emphaticus* (Habe & Ito, 1965) (Figs 11-12) in having a different spiral sculpture. *S. emphaticus* has two or three primary cords on early whorls, secondary cords start from fifth whorl and the last

whorl has six primary cords (P1-P6) with a single, narrower secondary cord between each pair of primary cords, the shoulder is smooth. *S. chunfui* is more spinose, and more rounded rather than shouldered. *S. emphaticus* has low, webbed varices with triangular, low, broadly open expansion at shoulder, rather than spinose at each intersection of

spiral cords and axial ribs as in *S. chunfui* n.sp.

S. chunfui differs from *S. densicostatus* (Golikov, 1985) (Figs 13-14) in having more rounded whorls with more numerous cords on each whorl. *S. densicostatus* has shouldered whorls with smooth shoulder (except axial lamellae) from first to fourth or fifth whorl. The penultimate and the last adult whorl have a single secondary spiral cord on shoulder. The early whorls in *S. densicostatus* have three primary cords (P1-P3), secondary cord between P1 and P2 and between P2 and P3 appears from fifth whorl. *S. chunfui* also differs from *S. densicostatus* in having fewer, narrower spiral cords on the convex part of the last adult teleoconch whorl : *S. densicostatus* has 11-13 crowded cords vs 9 or 10 cords in *S. chunfui*.

S. regina (Houart, 1985) (Fig. 15) has lower, less convex teleoconch whorls with broader, less numerous and more irregularly shaped spiral cords. The secondary spiral cords are narrow, almost obsolete and appear only from third or fourth teleoconch whorls. The spinelets at the intersection of the primary spiral cords and the axial lamellae are broader and more largely open. The protoconch is broad and is almost twice the size of that of *S. chunfui* n.sp.

S. bondarevi (Houart, 1995) differs in many ways : more numerous and narrower spiral cords (18-28 on

last whorl), shouldered whorls, broader aperture, and comparatively shorter siphonal canal.

Other species of *Scabrotrophon* differ in many aspects and does not need to be compared here. *Nipponotrophon* species differs primarily in having an inverted tear-shaped operculum with a nucleus in apical left, and in the overall morphological structure of the shell.

Etymology.

Named for Mr. Chun-Fu Lee, who kindly donated the type material.

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Reference.

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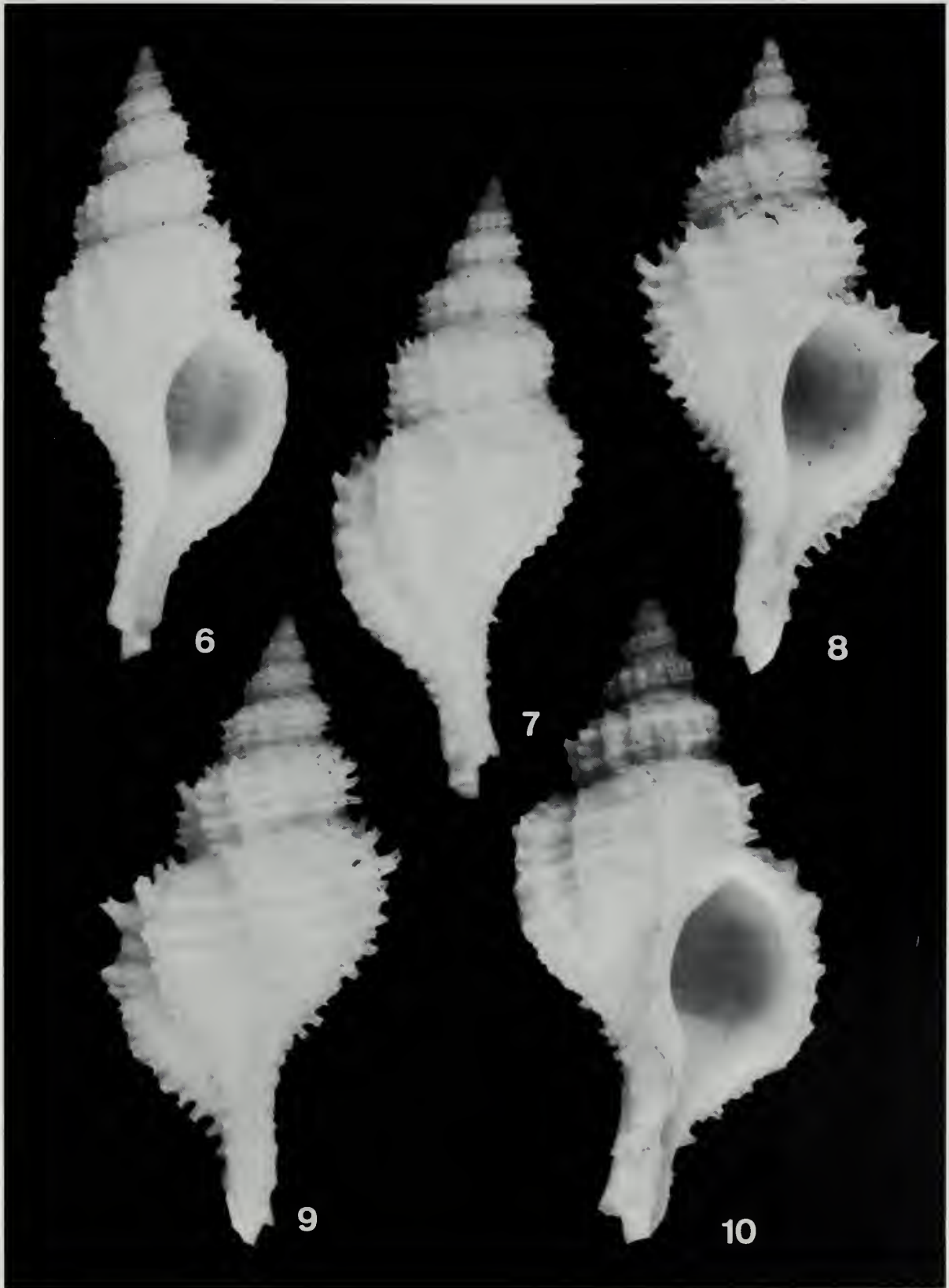
Figures.

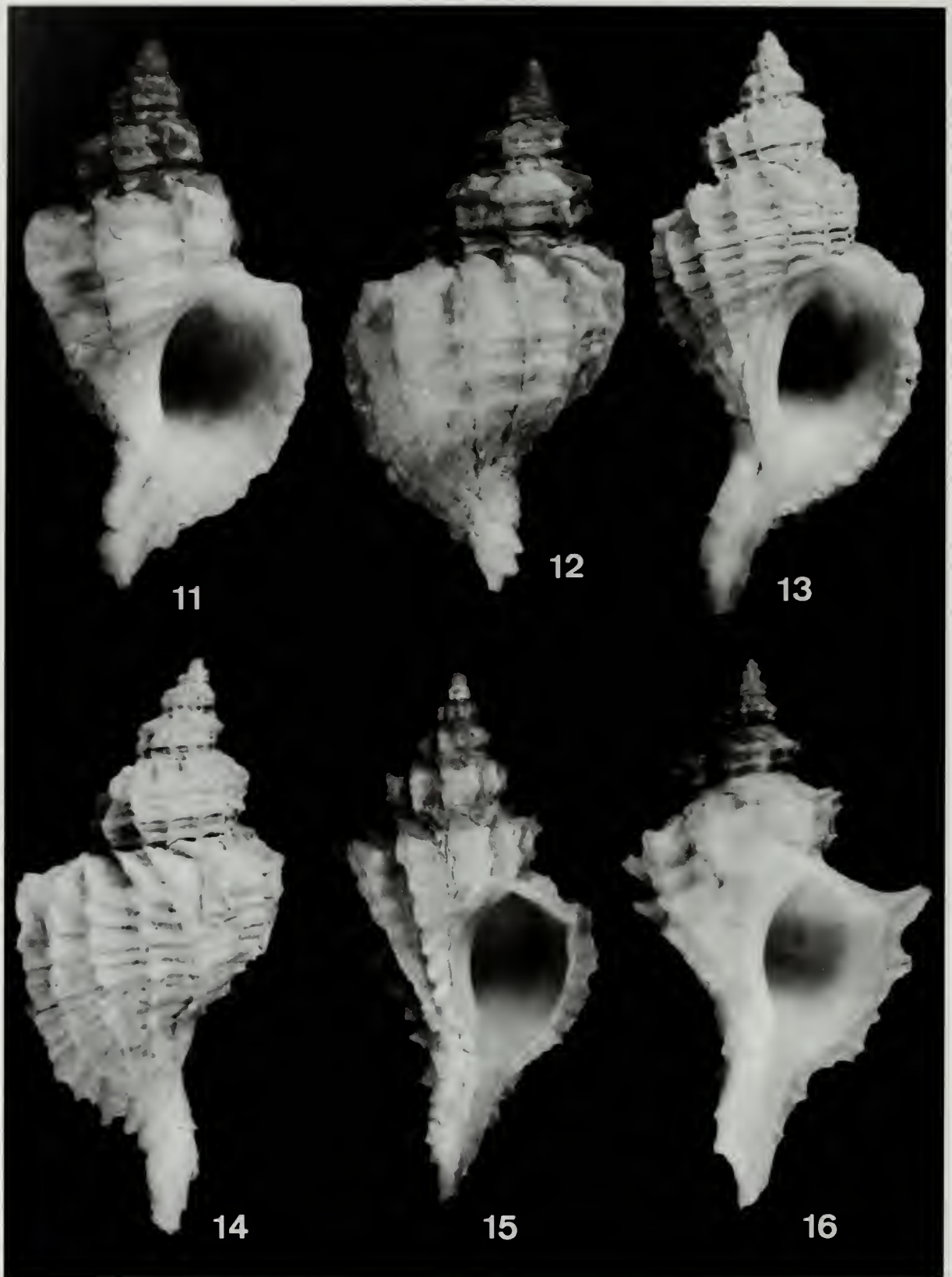
6-10. *Scabrotrophon chunfui* n.sp., North-East Taiwan, in 200-250 m.

6-7. Holotype MNHN, 32.4 X 12.8 mm.

8-9. Paratype NSMT-Mo 72864, 33.3 X 15.7 mm.

10. Paratype AMS C.204772, 40.2 X 19.3 mm.





11-12. *Scabrotrophon emphaticus* (Habe & Ito, 1965). Okhotsk Sea, 40 m, 56.1 X 28.9 mm, coll. R. Houart.
 13-14. *Scabrotrophon densicostata* (Golikov, 1985). Okhotsk Sea, Kurile Islands, 56.4 X 25.5 mm, coll. R. Houart;
 15. *Scabrotrophon regina* (Houart, 1985). Philippine Islands, 13°44' N, 120°31.6' E, 682-770 m, 31 mm, holotype MNHN;
 16. *Nipponotrophon echinus* (Dall, 1918). Off Jogashima, Sagami Bay, Japan, 250-300 m, 46.8 X 24.6 mm, coll. R. Houart.